

Notice of Allowability

Application No.

10/662,401

Examiner

DANIEL G. MARIAM

Applicant(s)

NIWA, AKIMASA

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to a telephone interview dated on January 18, 2008.
2. ☒ The allowed claim(s) is/are 1,3-6,9-17 and 19-67.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 1/18/08.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.



EXAMINER'S AMENDMENT AND REASONS FOR ALLOWANCE

Examiner's Amendment

1. An extension of time under 37 CFR 1.136(a) is required in order to make an examiner's amendment which places this application in condition for allowance. During a telephone conversation conducted on January 18., 2008, applicant's attorney, namely Kerry Culpepper requested an extension of time for one (1) MONTH(S) and authorized the Director to charge Deposit Account No. 50-1147 the required fee of \$120 for this extension and authorized the following examiner's amendment. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Kerry Culpepper on January 18, 2008.

The application has been amended as follows:

Amend the following claims of the amendment filed on June 26, 2007

Amend claim 8 as follows:

In line 1 delete the claim identifier "cancelled" and replace it with "currently amended" -

Amend claim 24 as follows:

At line 6, after the limitation “images;” insert “setting a watching region in said predetermined region of said real space, the watching region defining a high probability of existence of said candidate moving body;”

Amend claim 25 as follows:

In lines 1-4, delete the limitation “further comprising: setting a watching region in a portion or a whole of said predetermined region of said real space where said candidate moving body has higher probability of existing and moving therein based on said comparison result of extracting said figure of said candidate moving body,”

At line 6, delete the first occurrence of “an” and replace it with “said”

At line 6, delete the second occurrence of “an” and replace it with “said”

At line 7, delete the first occurrence of “an” and replace it with “said”

At line 7, delete the second occurrence of “an” and replace it with “said”

Amend claim 40 as follows:

At line 7, after the limitation “space;” insert “setting device for setting a watching region in said predetermined region of said real space, the watching region defining a high probability of existence of said candidate moving body;”

At line 12, after the limitation “prohibited;” insert “and”

Amend claim 41 as follows:

In lines 1-4, delete the limitation “said area selecting unit sets a watching region in a portion or a whole of said predetermined region of said real space where said candidate

moving body has higher probability of existing and moving therein based on said comparison result of extracting said figure of said candidate moving body,”

At line 4, before the limitation “classifies” insert “said setting device”

At line 5, delete the first occurrence of “an” and replace it with “said”

At line 5, delete the second occurrence of “an” and replace it with “said”

At line 7, delete the first occurrence of “an” and replace it with “said”

At line 8, delete the second occurrence of “an” and replace it with “said”

Add the following new claims 60-67:

60. (New) A moving body detecting method comprising steps of:

acquiring a plurality of static images of a predetermined region in a real space sequentially in time;

comparing said plurality of static images of said predetermined region of said real space; extracting a figure of a candidate moving body from said plurality of static images based on a result of the comparing step;

setting a watching region in said predetermined region in said real space, the watching region being defined as an area to which a smooth traveling path of said candidate moving body is extended from a position where said figure of said candidate moving body is extracted;

classifying said predetermined region of a real space into an allowable area and an unallowable area based on a result of the extracting step, said allowable area allowing said moving body to exist therein and said unallowable area not allowing said moving body to exist therein;

judging whether or not said figure of said candidate moving body moves in said watching region from said allowable area to said unallowable area; and

determining whether or not said moving body moves in said watching region based on a result of the judgment whether or not said figure of said candidate moving body moves in said watching region from said allowable area to said unallowable area.

61. (New) The moving body detecting method according to claim 60, further comprising steps of: acquiring a background image of said predetermined region of a real space which are captured in advance; and producing a plurality of difference images, each of said difference image is obtained by subtracting said background image of said predetermined region of a real space from each of said plurality of static images of a predetermined region of a real space, wherein said extracting step in which said figure of said candidate moving body is extracted is configured to extract said figure of said candidate moving body based on a result of performing a comparison among said plurality of static images of said predetermined region of a real space.

62. (New) The moving body detecting method according to claim 61, further comprising a step of: calculating a motion vector being indicative of a difference in position of said figure of said candidate body within a couple of difference images paired up from a plurality of selected images selected from said plurality of difference images of said watching region of

predetermined region of a real space, wherein determining step is configured to determine whether or not said moving body moves in said watching region based on whether or not said motion vector of said figure of said candidate moving body moves in said watching region from said allowable area to said unallowable area.

63. (New) The moving body detecting method according to claim 62, further comprising a step of:

producing step for producing a composite image of said watching region of said predetermined region of a real space which is made by superposing a plurality of selected images from said plurality of static images of said predetermined region of a real space, wherein said extracting step is configured to extract said figure of said candidate moving body from said composite image.

64. (New) An apparatus that detects a body moving within a predetermined region of a real space, comprising:

an imaging device that acquires a plurality of static images of a predetermined region in a real space sequentially in time;

a comparing device that compares said plurality of static images acquired by said imaging device;

a feature calculating device that extracts a figure of a candidate moving body from said plurality of static images based on a comparison result obtained by the comparing device;

a setting device that sets a watching region in said predetermined region in said real space, the watching region being, defined as an area to which a smooth traveling path of said

candidate moving body is extended from a position where said figure of said candidate moving body is extracted by said feature calculating unit;

an classifying device that classifies said predetermined region of a real space into an allowable area and an unallowable area based on a result of the extracting step, said allowable area allowing said moving body to exist therein and said unallowable area not allowing said moving body to exist therein;

a judging device that judges whether or not said figure of said candidate moving body moves in said watching region from said allowable area to said unallowable area; and
a motion detecting device that determines whether or not said moving body moves in said watching region based on a judgment preformed by the judging unit.

65. (New) The apparatus according to claim 64, wherein said imaging device further acquires a background image of said predetermined region of said real space which are captured in advance, further comprising:

a producing device that produces a plurality of difference images, each of said difference image is obtained by subtracting said background image from each of said plurality of static images acquired by said imaging device, wherein said feature calculating device extracts said figure of said candidate moving body based on the comparison-result performed by the comparing device.

66. (New) The apparatus according to claim 65, further comprising: a calculating device that calculates a motion vector being indicative of a difference in position of said figure of said candidate body within said couple of difference images paired up from said plurality of

selected images selected from said plurality of difference images acquired by said imaging device, and a motion detecting device that determines whether or not said motion vector of said figure of said candidate moving body moves in said watching region from said allowable area to said unallowable area, wherein said motion detecting device determines whether or not said moving body moves in said watching region based on the result obtained by the motion detecting device.

67. (New) The apparatus according to claim 66, further comprising; a producing device that produces a composite image of said watching region of said predetermined region of said real space which is made by superposing a plurality of selected images from said plurality of static images of said predetermined region of a real space, wherein said feature calculating device extracts said figure of said candidate moving body from said composite image.

Reasons for Allowance

3. Claims 1, 3-6, 9-17, and 19-67 allowed.

4. The following is an examiner's statement of reasons for allowance: with respect to claims 1, 3-6, 9-17, 19, 22 and 23 the reasons of allowance presented in the Final Office action are not repeated herein, but are entirely incorporated by reference. Additionally, claims 20-21 and 24-59 are also allowable for the same reason as claims set forth 1, 3-6, 9-17, 19, 22 and 23. With respect to new claims 60-67 none of the prior art of record disclose or fairly suggest, among other things, setting a watching region in said predetermined region in said real space, the watching region being defined as an area to which a smooth traveling path of said candidate moving body is extended from a position where said figure of said candidate moving body is

extracted. Hence, and in view of all of the above reasons in combination with all of the other elements of the claims, claims 1, 3-6, 9-17, and 19-67 are allowable over the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL G. MARIAM whose telephone number is 571-272-7394. The examiner can normally be reached on M-F (7:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, BRIAN P. WERNER can be reached on 571-272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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DANIEL G MARIAM
Primary Examiner
Art Unit 2624

January 18, 2008.